

# Dispatcher Communication Training

*It's All About Communications?*



Courtesy Rod Donavon



Courtesy Rod Donavon

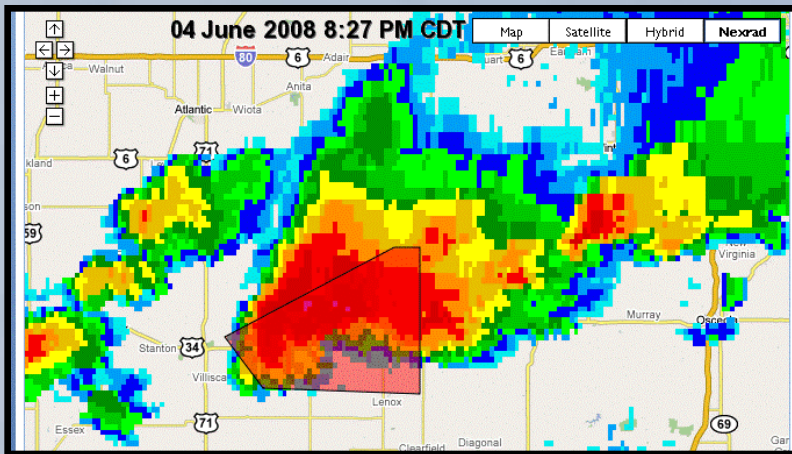
**National Weather Service  
Des Moines, IA**

*National Weather Service  
Des Moines, IA*



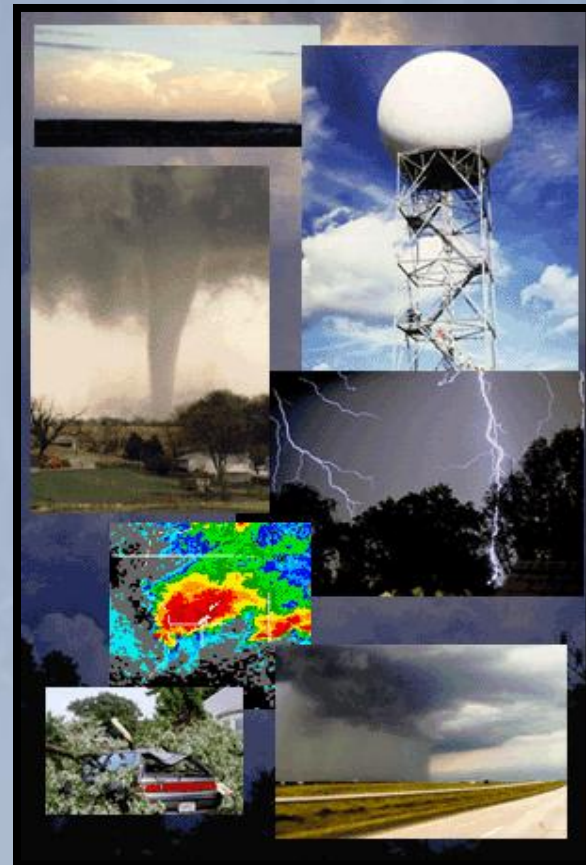
# Objectives

- What is the National Weather Service?
- Why we call
- What we need to know
- When to call the National Weather Service
- Optimizing communication



# Who are we and what do we do?

- A federal government agency created by Congress, with roots back to the civil war
- Part of NOAA – National Oceanic & Atmospheric Administration
- *Mission: Protection of Life and Property*



# Wait a minute...

**How can we protect lives and property?**

- **We can't stop the storm.**
- **We can't knock on every door and tell them it's coming (and neither can you).**

**So what can we do?**





- Prepare
- Forecasts, watches, advisories, warnings
- Share information

*The goal is for people to make informed and educated decisions for themselves.*



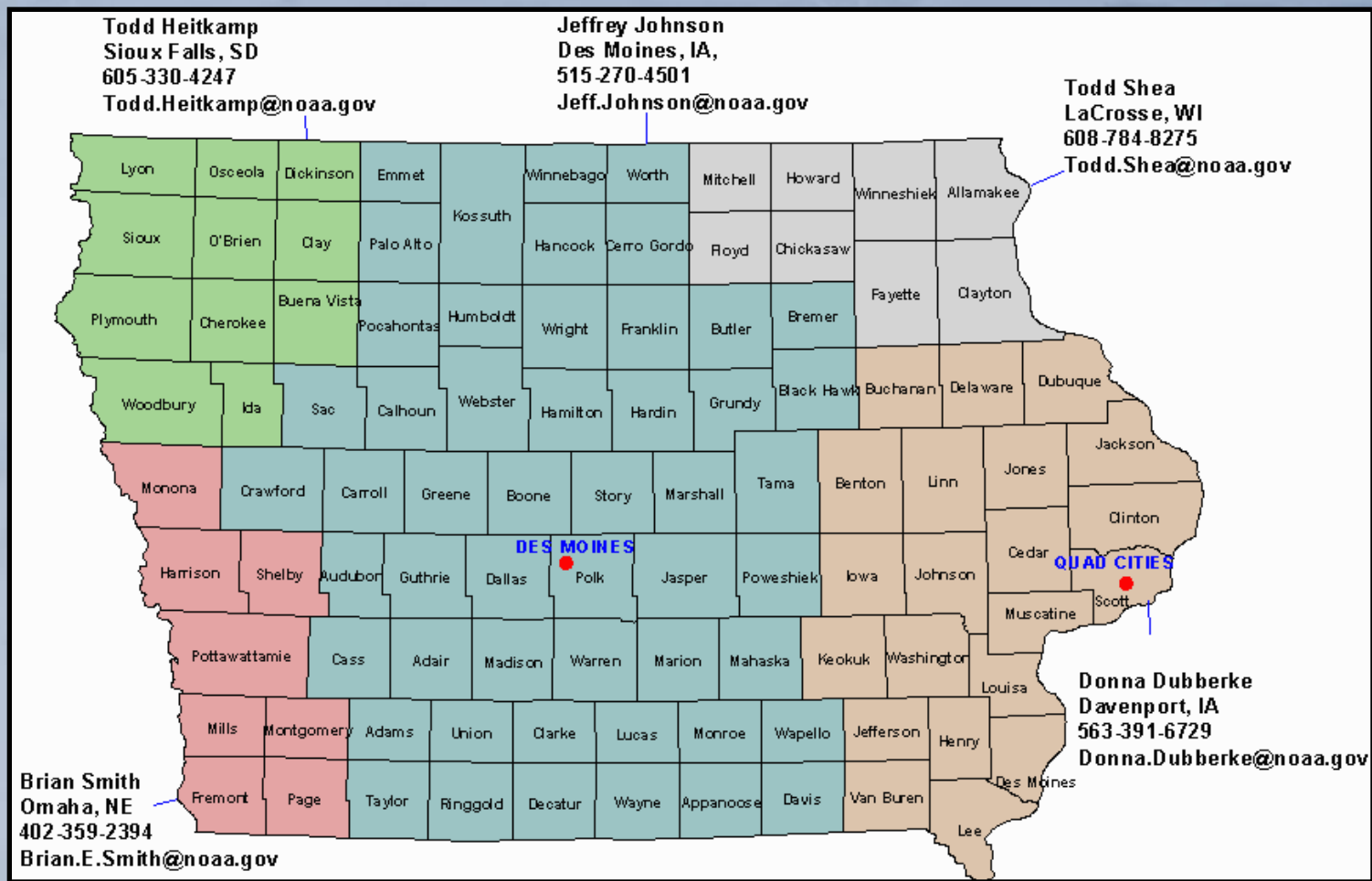
Courtesy NSSL

National Weather Service  
Des Moines, IA



# National Weather Service

## County Warning Areas in Iowa



# So what about your local office?

## Staffing

- Total staff of 23 people
- 24 hour shift coverage
- Rapidly rotating shifts
- 3 shifts per day



# Why do we call?

**It's all about information – You have it and we need it!**

**Remember our mission? The protection of lives and property. We can't do it alone. We need you, the local experts!**

***We monitor the entire area, but we're not at the scene. Radar only sees so much. People who are there tell us the rest.***



# Why do we call?

- **Storm spotter information**

- Real-time spotter reports
- Storm damage, injuries and fatalities
- Assist with local warning decisions



- **Coordination**

- “Heads-up” prior to storm
- Authenticate non-weather emergency messages



# What we need to know

Tornadoes

Funnel Clouds

Rotating Wall Clouds

Hail

Wind ( $\geq 40$  mph)

Flooding

Heavy Rain ( $\geq 1$  per hr)

Fatalities

Injuries

Damage



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Des Moines, IA



# What we need to know



Courtesy of Jeff & Amy Ruhland

## What is a Tornado?

- A violently rotating column of air attached to a cloud base and in contact with the ground.
- Exhibit rapid rotation and are most often laminar or smooth in appearance
- Can have visible and invisible funnels
- Usually vertically oriented

# What we need to know

## What about funnel clouds?



Courtesy Melissa Backstrom

- A rapidly rotating column of air **NOT** in contact with the ground
- Some funnels go on to become tornadoes, others do not



# Tornadoes

## Small Tornado

- Most frequent
- Short-lived
- Winds < 111 mph
  - EF0 / EF1
- Few fatalities
- More difficult to detect
- Produced by supercells and non-supercells, or landspout tornadoes



Courtesy of KCCI



Courtesy of Andrea Troff

# Tornadoes

## Strong Tornado

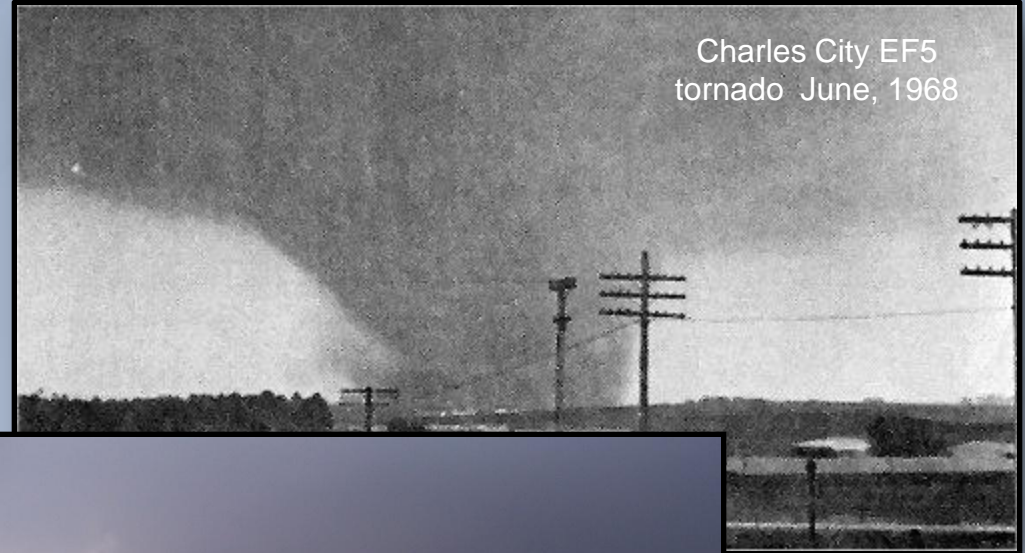
- Much Less frequent
- Typically lasts longer
- Winds up to 165 mph
  - EF2 / EF3
- Some fatalities
- Easier to detect
- Almost all from Supercell type storms



# Tornadoes

## Violent Tornado

- Rare
- Long-lived
- Winds > 165 mph
  - EF4 / EF5
- Most fatalities
- Easier to detect
- All from supercell storms



Charles City EF5  
tornado June, 1968



Parkersburg EF5  
tornado May, 2008

Courtesy of Rod Donavon

# Tornadoes



Courtesy Joshua Jans

**“Scud”**

**Can occur under any  
thunderstorm base**



NSSL photo

**“Virga” and Rain shafts  
Downdrafts which can  
resemble tornadoes**

**False Tornadoes**



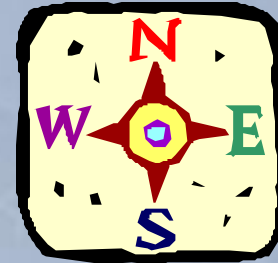
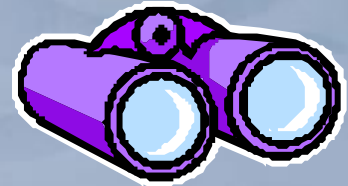
# What we need to know

## Tornado Reporting

- Who? (Spotter or public?)
- What? (funnel or tornado)
- Where? (reference nearest city)

*Can use Latitude/Longitude*

- When? (time of event)
- Movement? (direction and speed)
- Use proper terms
- Damage?
- Be as specific as possible!



# What we need to know



## Damaging Winds

- Severe straight-line winds associated with a thunderstorm downdraft
- Can cause significant damage and loss of life
- Often confused with tornadoes, especially at night
- Often accompanied with heavy rain and/or hail



Tractor/trailer blown over by winds  
Location: Rural Plainfield  
August 15, 2007 © Kip Ladage

# What we need to know

## Wind Reporting

**Who?** (spotter number/source)

**What?** (damage and/or measured speeds over 40 mph)

**Where?** (reference nearest city)

*Can use*

*Latitude/Longitude*

**When?** (time of event)

**Remember, spotters tend to overestimate wind speeds!**



Courtesy David Nicholson and WHO TV



Courtesy RJ Ranch and KCCI TV

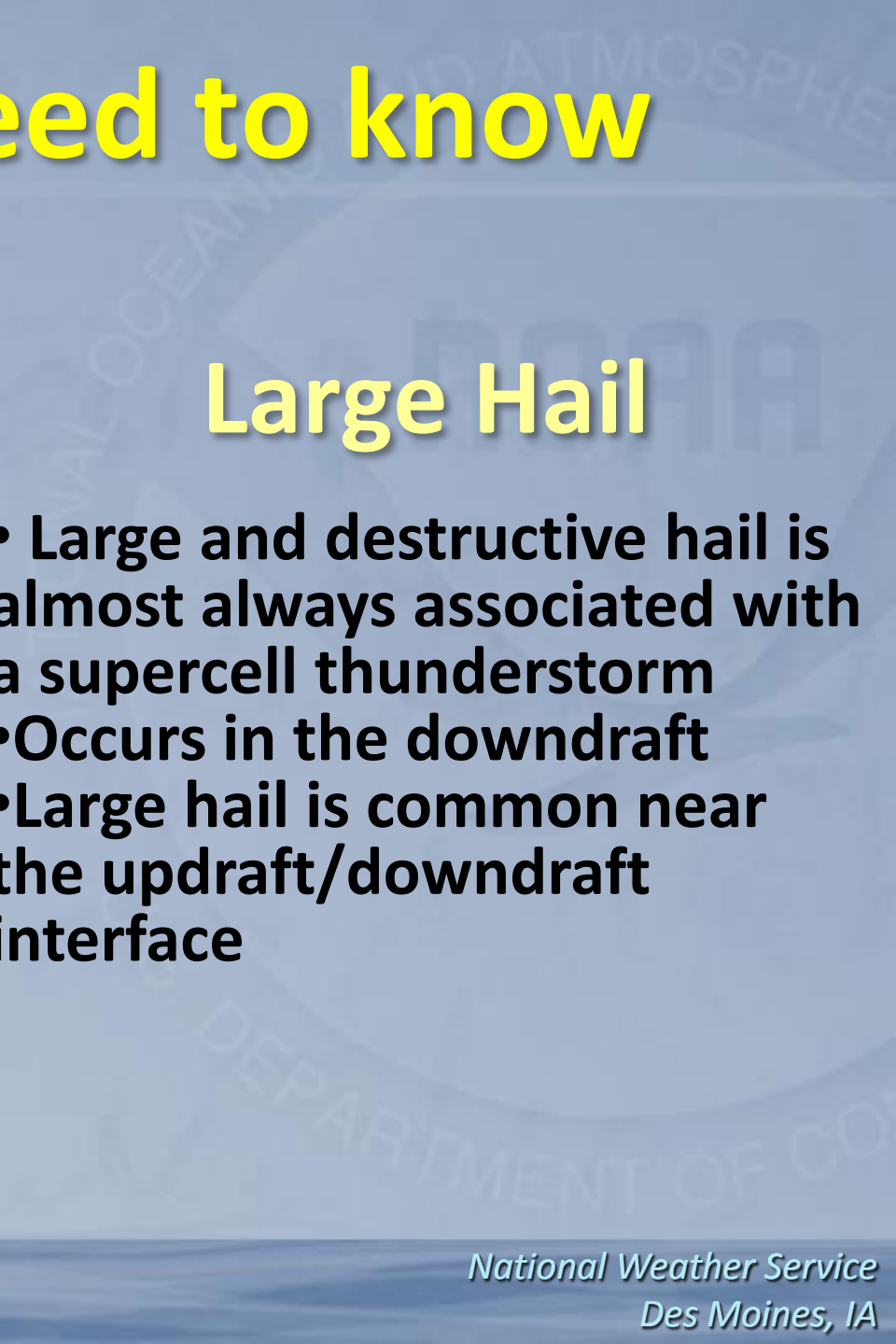
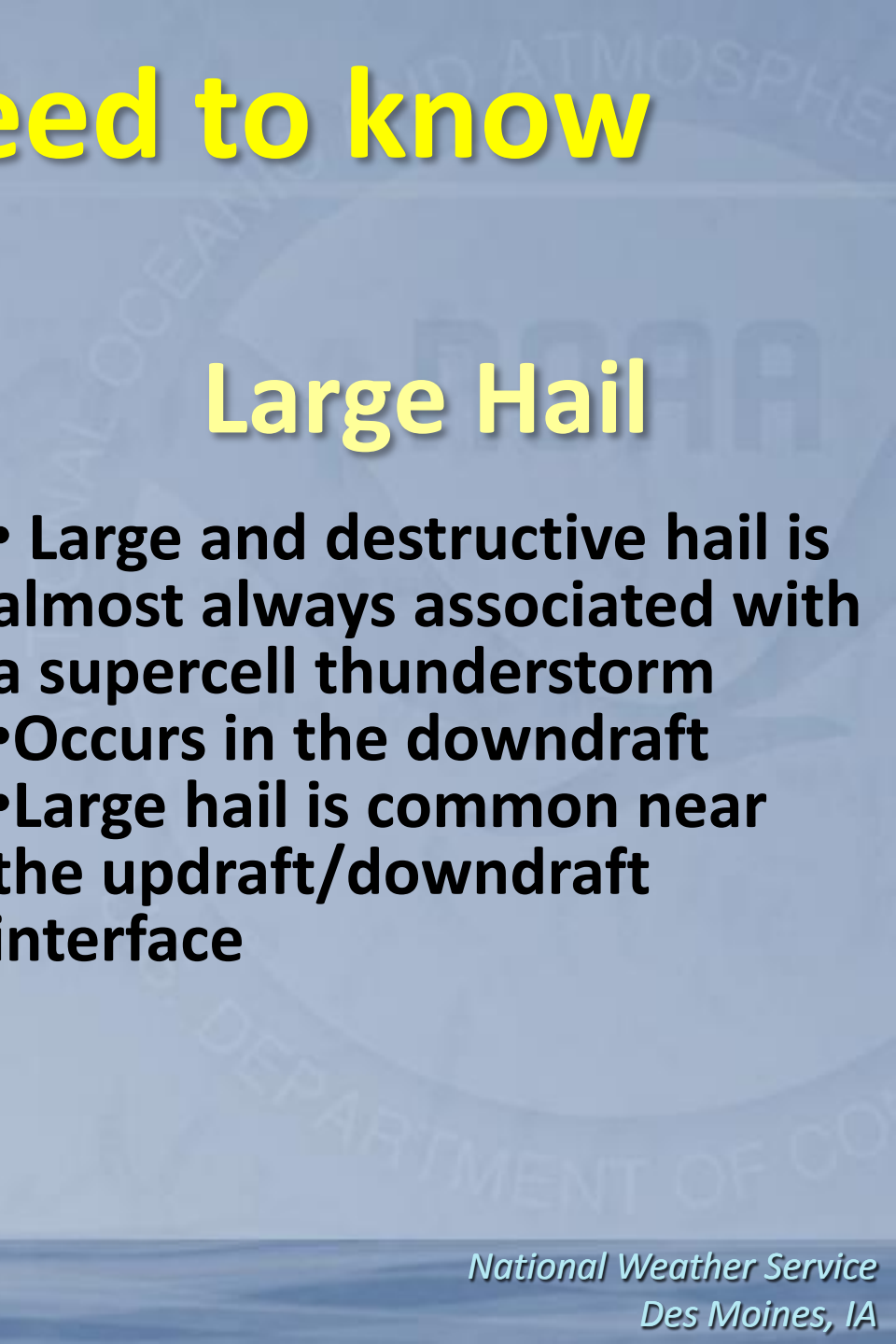


# Need to know

## Large Hail

- Large and destructive hail is almost always associated with a supercell thunderstorm
- Occurs in the downdraft
- Large hail is common near the updraft/downdraft interface

*National Weather Service  
Des Moines, IA*



# Need to know

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*National Weather Service  
Des Moines, IA*

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- National Weather Service  
Des Moines, IA*



# What we need to know



## Severe Hail

**Hail Reports – Use common references**

**Avoid reporting as marbles**

# What we need to know

## Hail Reporting

**Who?** (spotter number/source)

**What?** (size)

**Where?** (reference nearest city)

*Can use*

*Latitude/Longitude*

**When?** (time of event)



Courtesy Craig Maire II



# What we need to know

## Flash Flooding - Heavy Rain can be Deadly

- Cars can easily get swept away in 6 inches of flowing water.
- Roads may be washed out.



Courtesy KCCI



Courtesy Jamie McCartney

National Weather Service  
Des Moines, IA



# What we need to know

Flash flooding causes more deaths than tornadoes or lightning!



Photos Courtesy of Des Moines Register /  
KCCI



*Mud Creek August 2010*

National Weather Service  
Des Moines, IA





# What we need to know



Courtesy KCCI

## Flash Flooding from Ice Jams

**Ice Jams occur when broken Ice gets dammed up and backs up the river, causing levels to rise.**

# What we need to know

## What to Report- Flash flooding

- Rain Fall Measurements during Heavy Rain events
- Creeks, Rivers, or Streams out of their banks
- Water Covering Roads or affecting Property
- Standing vs. Flowing and Estimated Depth
- Ice Jams along Rivers and Streams



Courtesy Wapello County  
EMA

National Weather Service  
Des Moines, IA

# What we need to know

## Winter Weather

- Snow / Ice amounts
- Hazardous travel conditions
- Blizzard conditions



Courtesy of Alliant Energy





# What happens to the reports at the National Weather Service?

1. Received by staff
2. Integrated with other information (radar, satellite, other reports)
3. Used to “calibrate” radar
4. Helps in warning decision
5. Relayed via warnings, real-time storm reports
6. Web, NOAA Weather Radio and Media relay information

*It's all about getting information to people so they can make the right decisions.*



# Interested in Learning More?

- National Weather Service Storm Spotter Training
- Late February through April each spring
- Required for StormReady Communities
- Two hour training in the evening
- Check our website at [www.weather.gov/dmx](http://www.weather.gov/dmx) in January for the spotter training schedule



National Weather Service  
Des Moines, IA



# When to Call the National Weather Service?



# Anytime!

# When to Call the National Weather Service?



**It is simply not possible for you to “bug” us.**

**More calls = High confidence**

**High confidence = Accurate and Timely Warnings**

***Remember that we are here to help you!***

# When to Call the National Weather Service?

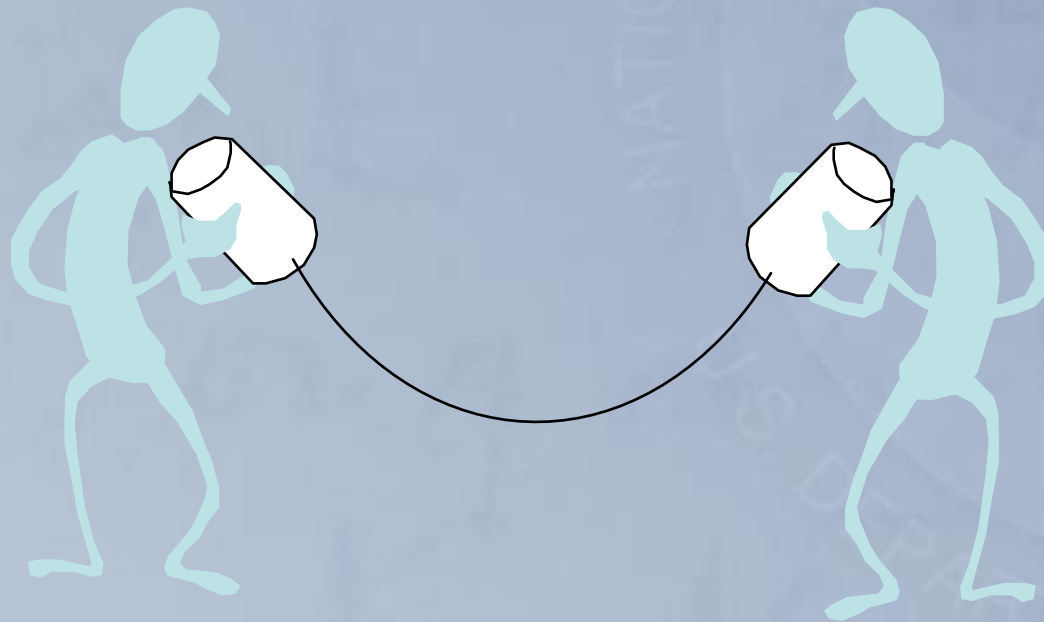
*Will you call us? We hope so.*

- When you have weather-related reports
  - Power outages? road closures? 911 outages?
- Injuries or fatalities
- For county-specific needs (weather, hazmat, other?)
- If you need clarification on a forecast or warning
- To schedule a visit/tour of the National Weather Service
- To let us know how an event went (feedback)





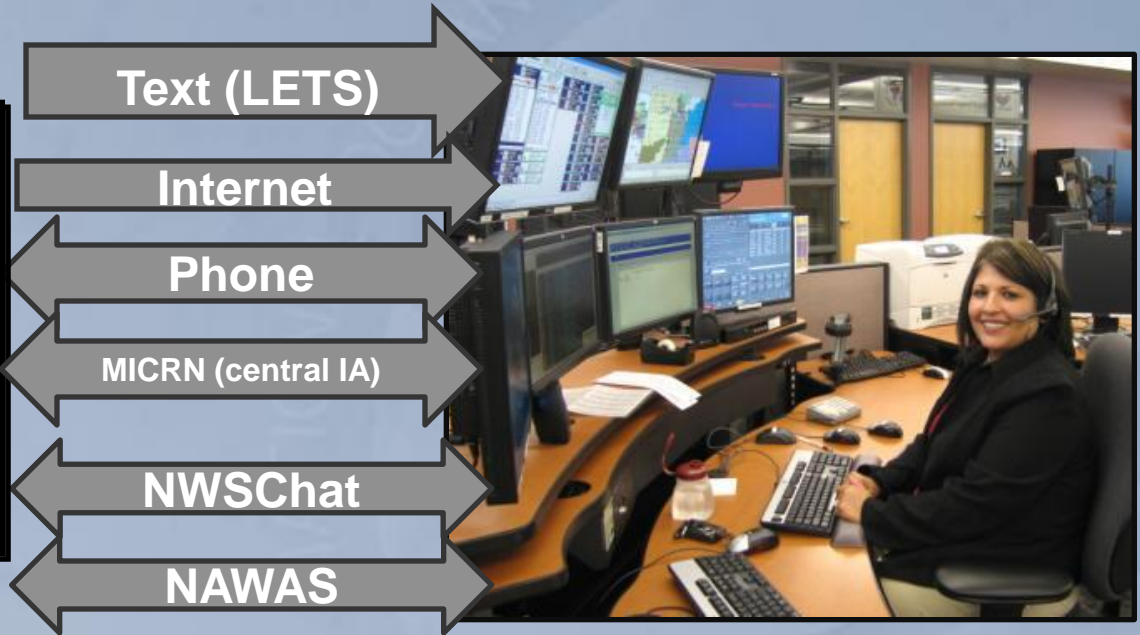
# How can we optimize communication?



# Dispatcher Communication During Severe Weather



# NWS-Dispatch Communication



**Needless to say, it is extremely busy during severe weather!**

***Best Practice – An alternate, or extra, person to handle severe weather communications, spotter activation and siren responsibilities.***

# Warning Types

-



# Making the Most of a Warning

## Tornado Warning Text Version

/O.NEW.KDMX.TO.W.0018.080525T2312Z-080526T0000Z/

BULLETIN - EAS ACTIVATION REQUESTED  
TORNADO WARNING  
NATIONAL WEATHER SERVICE DES MOINES IA  
612 PM CDT SUN MAY 25 2008

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

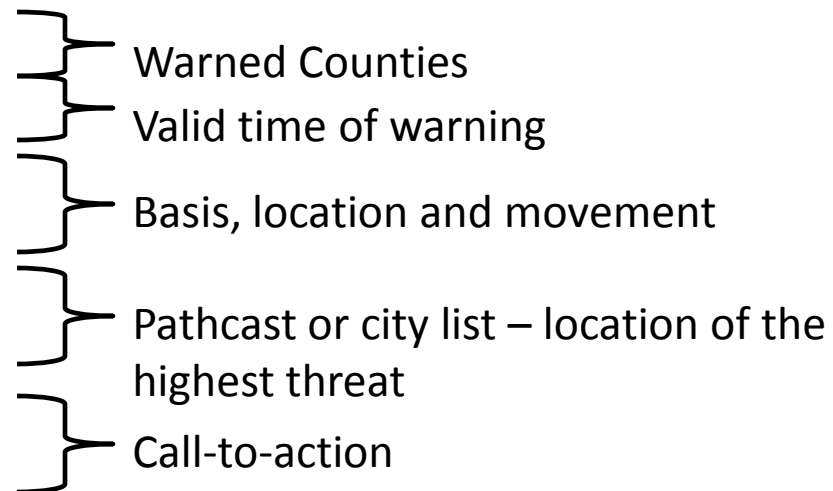
\* TORNADO WARNING FOR...  
SOUTHEASTERN CLARKE COUNTY IN SOUTH CENTRAL IOWA...  
WESTERN LUCAS COUNTY IN SOUTH CENTRAL IOWA...  
  
\* UNTIL 700 PM CDT.  
  
\* AT 609 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A  
SEVERE THUNDERSTORM CAPABLE OF PRODUCING A TORNADO 9 MILES  
SOUTHWEST OF WOODBURN...OR 45 MILES SOUTH OF DES MOINES...MOVING  
NORTHEAST AT 24 MPH.  
  
\* THE TORNADO WILL BE NEAR...  
WOODBURN BY 635 PM CDT...  
LUCAS BY 650 PM CDT...  
CHARITON AIRPORT BY 700 PM CDT...

THIS IS A HAZARDOUS SITUATION. SEEK SHELTER IN A BASEMENT...OR IN AN  
INTERIOR ROOM. STAY AWAY FROM WINDOWS. IF YOU ARE OUTSIDE OR IN A  
CAR...SEEK SHELTER IN A REINFORCED BUILDING.

A TORNADO WATCH REMAINS IN EFFECT UNTIL 900 PM CDT SUNDAY EVENING FOR  
NORTHWESTERN IOWA.

LAT...LON 4093 9391 4116 9356 4103 9324 4090 9354  
4090 9363  
TIME...MOT...LOC 2312Z 241DEG 21KT 4094 9372

\$\$



National Weather Service  
Des Moines, IA

# Making the Most of a Warning

## Tornado text warning vs graphical warning polygon

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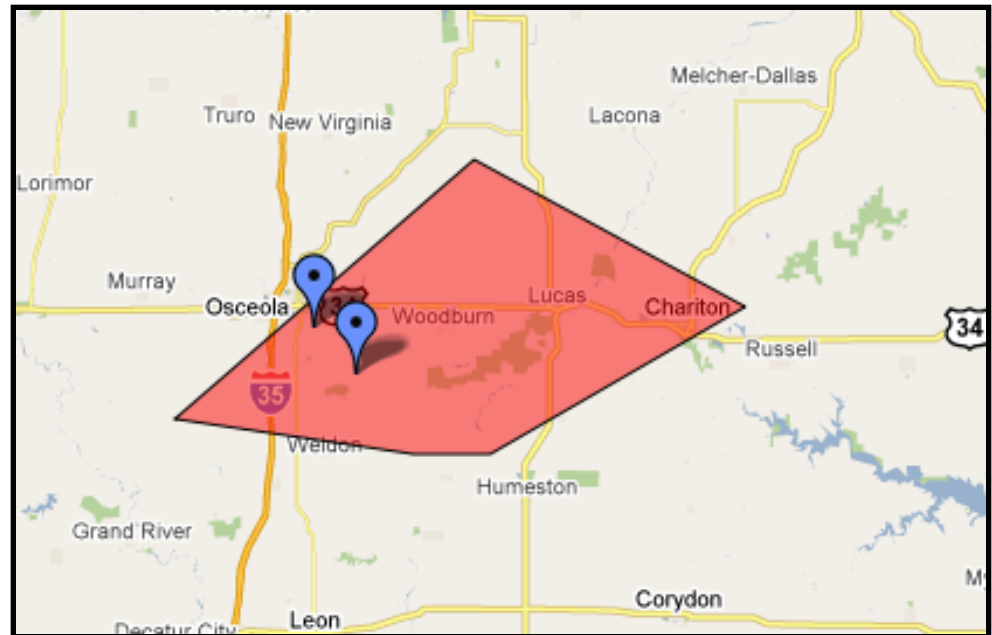
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# Making the Most of a Warning

## Severe Thunderstorm Warning Text Version

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

\* SEVERE THUNDERSTORM WARNING FOR...  
NORTHWESTERN HUMBOLDT COUNTY IN NORTH CENTRAL IOWA...  
SOUTHWESTERN KOSSUTH COUNTY IN NORTH CENTRAL IOWA...  
PALO ALTO COUNTY IN NORTHWEST IOWA...  
POCAHONTAS COUNTY IN NORTHWEST IOWA...

\* UNTIL 1230 AM CDT

\* AT 1144 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED A  
SEVERE THUNDERSTORM CAPABLE OF PRODUCING PING PONG BALL SIZE  
HAIL...AND DESTRUCTIVE WINDS IN EXCESS OF 70 MPH. THIS STORM WAS  
LOCATED 9 MILES SOUTHWEST OF EMMETSBURG...OR 20 MILES SOUTHEAST OF  
SPENCER...AND MOVING SOUTHEAST AT 30 MPH.

\* LOCATIONS IMPACTED INCLUDE...  
LAURENS...POCAHONTAS...CURLEW...RODMAN...WHITTEMORE...MALLARD...  
WEST BEND...PLOVER...HAVELOCK...OTTOSEN...ROLFE...VARINA...GILMORE  
CITY...BRADGATE...RUTLAND...FONDA...BODE AND LIVERMORE.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

MOVE TO AN INTERIOR ROOM AND STAY AWAY FROM WINDOWS. IF YOU ARE IN A  
MOBILE HOME...GET OUT NOW...AND SEEK SHELTER IN A REINFORCED  
BUILDING.

&&

LAT...LON 4280 9405 4256 9486 4256 9492 4272 9493  
4312 9493 4326 9465 4326 9458  
TIME...MOT...LOC 0446Z 331DEG 24KT 4300 9478  
WIND...HAIL 70MPH 1.50IN

Warned Counties

Valid time of warning

Basis, location and movement

Pathcast or city list – location  
of the highest threat

Call-to-action

Wind & hail tag – maximum expected wind speed and hail size

National Weather Service  
Des Moines, IA





# Making the Most of a Warning

## Severe thunderstorm warning vs graphical warning polygon

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

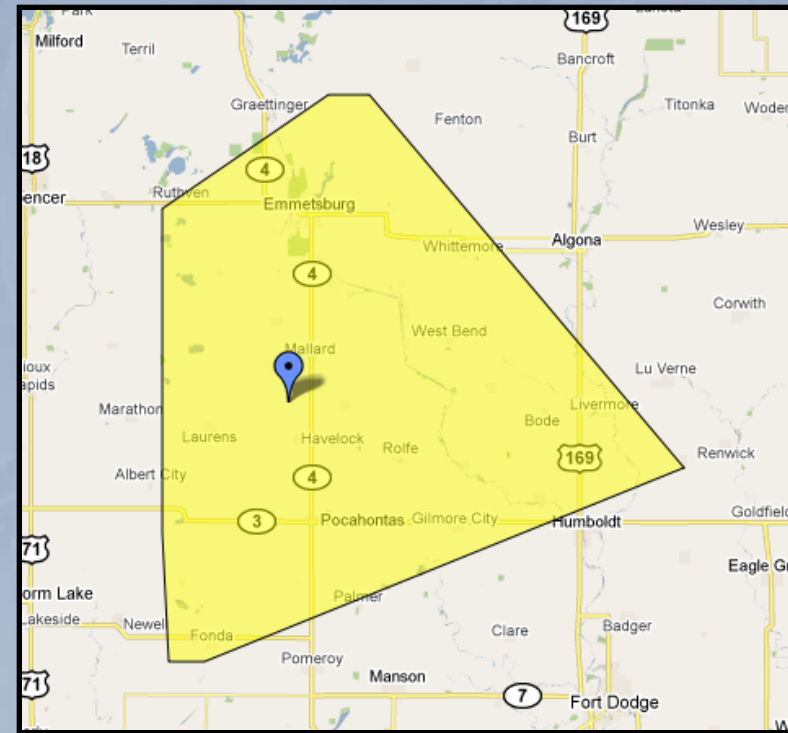
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PRECAUTIONARY/PREPAREDNESS ACTIONS...

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WIND...HAIL 70MPH 1.50IN



# Making the Most of a Warning

## Flash Flood Warning Text Version

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

\* FLASH FLOOD WARNING FOR MINOR FLOODING OF POOR DRAINAGE AREAS IN...  
JASPER COUNTY IN CENTRAL IOWA...  
POLK COUNTY IN CENTRAL IOWA...

\* UNTIL 500 AM CDT

\* AT 1111 PM CDT...NATIONAL WEATHER SERVICE DOPPLER RADAR INDICATED  
SLOW MOVING THUNDERSTORMS WITH INTENSE RAINFALL RAINFALL ACROSS  
THE WARNED AREA. RAINFALL ESTIMATES ARE AS HIGH AS 1 TO 2  
INCHES...WITH ADDITIONAL THUNDERSTORMS ENTERING THE WARNED AREA.

\* FLASH FLOODING IS MOST LIKELY IN CITIES AND TOWNS IN THE WARNED  
AREA...BUT IS ALSO POSSIBLE IN RURAL AREAS TOO. SOME LOCATIONS  
THAT WILL EXPERIENCE FLOODING INCLUDE...DES MOINES...ALTOONA...  
ANKENY...BONDURANT...CLIVE...COLFAX...GRIMES...  
JOHNSTON...MONROE...NEWTON...PLEASANT HILL...POLK CITY...PRAIRIE  
CITY...URBANDALE...WEST DES MOINES AND WINDSOR HEIGHTS.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

EXCESSIVE RUNOFF FROM HEAVY RAINFALL WILL CAUSE FLOODING OF SMALL  
CREEKS AND STREAMS...URBAN AREAS...HIGHWAYS...STREETS AND UNDERPASSES  
AS WELL AS OTHER DRAINAGE AREAS AND LOW LYING SPOTS.

BE ESPECIALLY CAUTIOUS AT NIGHT WHEN IT IS HARDER TO RECOGNIZE THE  
DANGERS OF FLOODING. IF FLASH FLOODING IS OBSERVED ACT QUICKLY. DO  
NOT ENTER THE WATER. TURN AROUND AND MOVE UP TO HIGHER GROUND TO  
ESCAPE FLOOD WATERS. DO NOT STAY IN AREAS SUBJECT TO FLOODING WHEN  
WATER BEGINS RISING.

&&

LAT...LON 4151 9290 4151 9333 4149 9333 4149 9340  
4151 9343 4151 9380 4159 9379 4160 9382  
4186 9382 4186 9291

Warned Counties

Valid time of warning

Basis of warning

City list & impacted small stream or  
river basins

Call-to-action



National Weather Service  
Des Moines, IA

# Making the Most of a Warning

## Flash flood text warning vs graphical warning polygon

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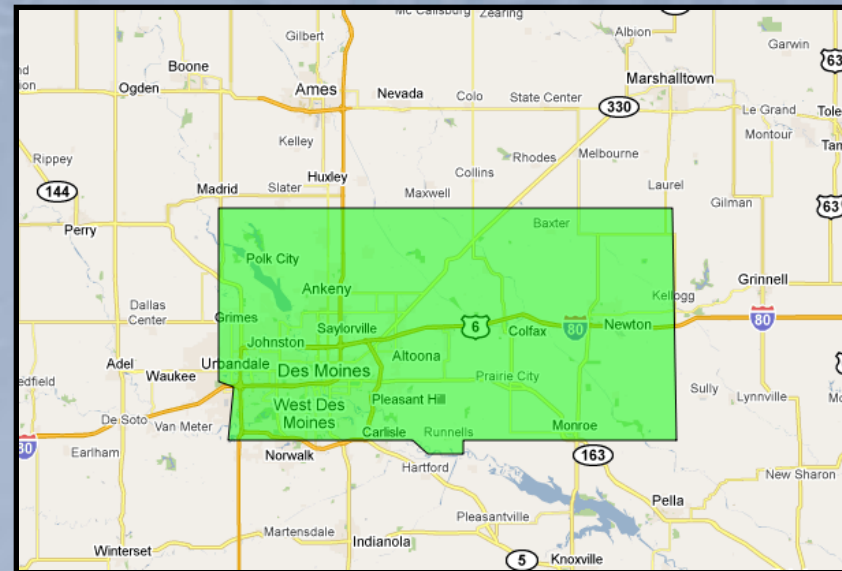
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LAT...LON 4151 9290 4151 9333 4149 9333 4149 9340  
4151 9343 4151 9380 4159 9379 4160 9382  
4186 9382 4186 9291



# Making the Most of a Warning

## “Emergencies”

- **Tornado Emergency** – A destructive confirmed tornado which will likely move into a populated area resulting in serious property damage and a high potential for loss of life!
- **Flash Flood** – A serious flash flood which will likely cause severe damage and a high potential for loss of life!




Courtesy of Rod Donavon





# National Weather Service Website



National Weather Service Weather Forecast Office

## Des Moines, IA

Home Site Map News Organization Search for:

Local forecast by "City, St" or Zip Code

City, St

**XML RSS Feeds**

**Current Hazards**

Watches/Warnings  
Outlooks  
Submit Report

**Current Conditions**

Observations  
Radar  
Satellite  
Snow Cover  
Snowfall Analysis

**Forecasts**

Forecast Discussion  
Local Area  
Activity Planner  
Aviation Weather  
Fire Weather  
Severe Weather  
Winter Weather  
Hurricane Center

**Hydrology**

Rivers & Lakes  
Precip Estimates

**Climate**

Local  
National  
Drought  
More...

**Weather Safety**

Preparedness  
Weather Radio  
StormReady  
SkyWarn

**Additional Info**

Items of Interest  
Education Resources  
Coop Observer  
Top News Archives  
Our Office  
Contact Us

**Top News of the Day**

- 2011 Spring flood outlook #1 now available
- 2011 Spotter Training Schedule

Watches & Warnings Observations Forecast Graphics Rivers & Lakes Climate Winter Monitor

Click on the map below for the latest forecast.




Read watches, warnings & advisories

Zoom Out

Hazardous Weather Outlook


Last map update: Tue, Feb. 15, 2011 at 1:49:15 pm CST

**Latest Conditions in Des Moines, IA** **Choose Your Front Page City**

Feb 15 12:54 pm  **47°F** (8°C)

Overcast

**Weather Story** **Radar** **Satellite** **Weather Map**



**On this day in Iowa weather history...**

**2003:** A winter storm produced rain, freezing rain, and snow across Iowa on February 14-15. The precipitation began as rain with significant freezing rain affecting far northwestern Iowa on the 14th, then changed over to snow with the entire state recording accumulations by the 15th. The heaviest snow fell in a wide band from west central into

[www.weather.gov/desmoines](http://www.weather.gov/desmoines)

National Weather Service  
Des Moines, IA



# Phone Communications

**Spotter hotline SKYWARN  
number:**

**1-800-SKYWARN (1-800-  
759-9276)**

**This is the PREFERRED  
number to use!**



# Radio Communications

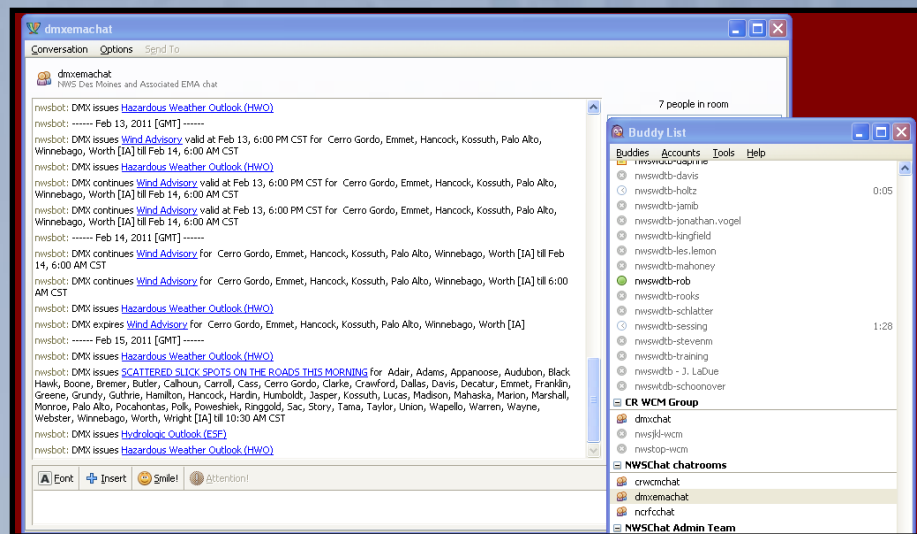
## MICRN – Metro Incident Command Radio Network



Eight central  
Iowa counties  
with over 40  
agencies on the  
network

# NWSCHAT

- Private, secure chat and instant messaging service between NWS, dispatch offices and emergency managers.
  - Ability to quickly share and view information from NWS and nearby counties.
- Includes automated weather feed which is the fastest way to receive NWS warnings.
- Feed includes ability to graphically display radar info and exact warning areas.
  - Great for siren activations.
  - For additional information contact Senior Forecaster Brad Small at [Bradley.small@noaa.gov](mailto:Bradley.small@noaa.gov).





# WAS



# Iowa State Patrol Warning Point areas and IOWAS locations

## Red- ISP Warning Points

## Blue-Other IOWAS locations

**All NWS offices have  
a line**

# Help us improve...

- What could we do better?
- Recent Problems?
- Let us know...
- Call or E-mail: Jeff Johnson

**National Weather Service**

**Des Moines, IA**

**[jeff.johnson@noaa.gov](mailto:jeff.johnson@noaa.gov)**

**515-270-4501 E726**

# Thank you!!!



**National Weather Service  
Des Moines, IA**

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